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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,665	01/23/2006	Sai Shankar Nandagopalan	PHUS030248	2601
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/565,665

Applicant(s)

NANDAGOPALAN, SAI SHANKAR

Examiner

NAM HUYNH

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)
Paper No(s)/Mail Date 1/23/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 1/23/06 has been considered by the examiner.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 10, 19, and 21 recite calculating a buffer-emptying rate that is equal to the product of a delay and an amount by which a peak transmission rate exceeds the calculated rate. This limitation implies that the buffer-emptying rate is calculated using the buffer-emptying rate which is the value being calculated. In other words, a calculation is being made that takes into account the result of the calculation which is indefinite. Based on the figure citation in the claim, it appears that Applicant is claiming equation 2 on page 6 of the specification. The equation specifies that the delay is multiplied with $(P - p_i)$ or the peak data rate minus the mean data rate (page 2). Accordingly, the "calculated rate" will be interpreted as the "mean data rate" for

examination purposes, which is the Examiner's best interpretation of the claim language.

Regarding claims 3, 12, and 23, the claims further define that the "calculated rate" presented in independent claims 1, 10, 19, and 21 as being inversely proportional to one minus a determined probability of error for transmitting a frame on a channel. The Examiner does not know if the "calculated rate" refers to the result of the calculating step or the "calculated rate" used in the calculating step. Accordingly, the "calculated rate" will be interpreted as the result of the calculating step for examination purposes, which is the Examiner's best interpretation of the claim language.

Regarding claims 2, 4-9, 11, 13-18, 20, 22, and 24-29, these claims are rejected based on their dependency of independent claims 1, 10, 19, and 21.

Claim Objections

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required.

Regarding claims 19 and 20, the preamble defines "an admission control program, embodied in a computer-readable medium", however, there is no definition in the original specification to what the "computer readable medium" is such that it fails to provide proper antecedent basis. For examining purpose, the "computer readable medium" is interpreted as a tangible computer product that does not include waveforms or signals.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 2, 5, 7-11, 14, 16-22, 25, and 27-29, are rejected under 35 U.S.C. 103(a) as being unpatentable over Droz (US 6,292,466) in view of Elwaid et al. (US 5,978,356) (hereinafter Elwaid).

Regarding claims 1, 10, 19, and 21, Droz teaches An admission control method for a wireless network that includes a plurality of wireless stations and a controller (resource manager), comprising the steps of:

calculating, for a station of the plurality, a minimally sufficient buffer-emptying rate (output rate) based upon a maximum buffer size (queue length threshold) (column 5, lines 30-57);

determining, based on the calculated rate, whether said station of the plurality is granted a right to communicate on a channel of the network (column 6, lines 45-67; column 7; column 8, lines 1-25).

However, Droz does not explicitly teach that the calculation of the buffer-emptying rate is equal to the product of a delay and an amount by which a peak transmission rate of said station exceeds the calculated rate, said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate of said station. Elwaid discloses a traffic shaper for network nodes (title). Elwaid teaches the calculation of the buffer-emptying rate is equal to the product of a delay (size of the data buffer) and an amount by which a peak transmission rate (P) of said station exceeds the calculated rate (r), said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate of said station (column 16, lines 29-60). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Droz to include the shaper of Elwaid in order to enhance connection carrying capacity in the network nodes in an efficient and cost-effective manner by choosing parameters that take into effect associated traffic delay on the effective bandwidth of the traffic resources.

Regarding claims 2, 11, and 22, Elwaid teaches the buffer size is bounded by the product of the calculated rate for said station and a maximum delay between arrival of a data frame at a medium access control (MAC) layer and a beginning of transmission of the frame on a physical (PHY) layer (column 6, lines 20-42).

Regarding claims 5, 14, 20, and 25, Droz teaches the calculated rate of said station is inversely proportional to one minus a determined probability of error for transmitting a frame on the channel (column 6, lines 45-67; column 7; column 8, lines 1-25).

Regarding claims 7, 16, and 27, Droz teaches the method of claim 1, wherein said right to communicate allows said station to transmit at least one frame during a transmission opportunity time interval, said calculating determining, for the purpose of adding size overhead to said at least one frame, how many of the frames fit within said interval (column 6, lines 48-67; column 7, lines 1-36).

Regarding claims 8, 17, and 28, Droz teaches the determining step further comprises the steps of calculating respective minimally sufficient buffer-emptying rates of the plural stations, converting said respective minimally sufficient buffer-emptying rates to respective air times, and summing the air times for comparison with an air time threshold of the channel (column 6, lines 45-67; column 7; column 8, lines 1-25).

Regarding claims 9, 18, and 29, Elwaid teaches the calculating step further comprises the step of receiving as parameters transmitted from said station, to execute the calculating and determining steps, only the mean transmission rate, the peak transmission rate, a maximum burst size, a maximum delay, a data frame size and a minimum transmission rate (column 4, lines 13-26).

Allowable Subject Matter

7. Claims 3, 4, 6, 12, 13, 15, 23, 24, and 26 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bonaventure (US 6,680,907)

Malaney et al. (US 2002/0039349)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAM HUYNH whose telephone number is (571)272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/Nam Huynh/
Examiner, Art Unit 2617